IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,	)	
Plaintiff,	)	
vs.	)	4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,	)	
Defendants.	)	

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VOLUME I OF THE VIDEOTAPED DEPOSITION OF MICHAEL McGUIRE, PhD, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 18th day of March, 2009, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Kristen Holmes, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

EXHIBIT 2

Q Did you undertake any surveys or studies or research to identify the source of the nutrients in the -- either the Colorado River or the reservoirs?

A I can't recall any at this point. We were not faced with any high nutrient conditions in either Lake Mathews or Lake Skinner. Aah, in -- we were interested in the nutrient inputs in the State Water Project reservoirs. While we did not control them and operate them, they were operated by the California Department of Water Resources, a state government department. We received water from them, and there were a number of small wastewater discharges into those reservoirs, and we were interested in those nutrient inputs and what -- what the effects of those might be. We were also interested in nutrient cycling through the sediments in all of the reservoirs because of a problem with benthic blue-green algae, a series of different benthic blue-green algae that we were monitoring and -- and researching. 10:06AM 10:07AM 10:07AM

Q Okay. So did you conduct any type of investigation to identify the source of nutrients in either of the Metropolitan's lakes or the Colorado River?

A No. Sorry. Not true. On the Colorado River 10:07AM 10:08AM

Q What -- can you explain what a limiting nutrient is in the context of a reservoir?

A A limiting nutrient is one that is generally in low concentration compared to the other nutrients that you're comparing it to. For example, if you take the simple case of nitrogen and phosphorus, in a lot of reservoirs there is plenty of nitrogen available, either due to input of nitrogen from runoff or fertilizer use in the watershed or whatever or from the death and decay of plants from nitrogen-fixing organisms. Phosphorus, on the other hand, sometimes is in very low concentrations, and the algae will only grow to the extent that the phosphorus level will stimulate that growth. Phosphorus is critical for -- for the growth and reproduction of -- well, of organisms in general, but algae specifically, and so they will only grow to accommodate the level of phosphorus that's there. So if more phosphorus is put in, then they will grow more. It's -- so it's the amount of nitrogen that's present is in excess, the amount of phosphorus is limiting.

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10:38AM

Q Okay. Thank you. Did you undertake any -- did you or Metropolitan while you were there undertake any studies or surveys to identify any

10:38AM

sources of the nitrogen and phosphorus in the four State Water Project reservoirs?

A There were small wastewater plants that were discharging into the reservoir, and we -- we did do some work on those. I'm -- the details are very vague in my mind. We were always interested in what was coming into the reservoirs from the main flow of the -- of the aqueducts that were bringing water from northern California. They go through a very rich agricultural area in the Sacramento-San Joaquin Delta, and from there they pick up a variety of different materials, and we were always interested in tracking that. So that is -- those were the primary sources that we were interested in. These watersheds were pretty -- pretty much undeveloped, and so there wasn't much contribution from -- besides these small wastewater plants, much -- much contribution from other activities that I can recall. 10:39AM 10:39AM 10:39AM

Q We don't have aqueducts in Oklahoma, as far as I know. Can you -- can you explain to me a little bit more what you just said the -- about the aqueduct systems -- system? 10:40AM

MR. JORGENSEN: Object to the form.

A In our case we have a lot of rain in the 10:40AM

stratification, the establishment of a thermocline, zero dissolved oxygen below the thermocline. I've worked with a number of clients on in-reservoir treatment in order to reduce those contaminants, hydrogen sulfide being a contaminant that's produced in the reservoir, shifting species, again, from one -- from blue-greens, which might be dominant, to more green algae. We actually evaluated in -- in-reservoir treatment of high levels of trihalomethanes with using surface aerators. There was a finished water reservoir that had -- that was a finished water reservoir. It wasn't a raw water reservoir. Okay. Those are the ones that come to mind. Again, if I think of any, I'll be happy to fill in. 02:16PM 02:17PM 02:17PM

Q Okay. What project did you undertake to keep asbestos from getting into a reservoir?

A That was the survey of the State Water Project that was done in the early 1980's where we discovered that the State of California was taking in these flood flows from the Coalinga area, and so we encouraged them to find alternate ways of getting rid of the stormwater than putting it into the aqueduct because of the problem with the fact that the runoff was coming from these asbestos mines. 02:17PM 02:17PM

Q Okay. Did you do any of the -- the source identification work to identify the location of the asbestos released?

MR. JORGENSEN: Objection, asked and answered. 02:18PM

A We did the sampling of the water. The source was obvious. It was there. I mean, you could see it physically. The levels of asbestos fibers in the stormwater were huge, and, also, they laid down a sediment layer in the aqueduct itself of -- of high 02:18PM concentrations of asbestos fibers in the sediment that then would be slowly released over time. So it was kind of a mess all the way around, and getting them to change their operations so that that didn't happen anymore was our goal. 02:18PM

Q Okay. So did you test the runoff water?

A Yes.

Q And visibly identified the mine?

A That was a matter of public record. We didn't have to visibly identify it. 02:18PM

Q Okay, and then tested the source water -- the raw water?

A I'm not sure what you mean by raw water. There are different kinds of raw water. What --

Q The reservoir? 02:19PM

A The reservoir, yes, yes.
Q Okay, and were you able to identify the mine as the source of the asbestos?
A We -- yes. It was pretty obvious where it was coming from. These were massive, massive 02:19PM
concentrations, and there was a specific activity that was easily identifiable. There was no mystery here. You know, it was mines, stormwater. There were gates that let the water into the -- the
aqueduct, and the concentrations below were much 02:19PM
higher than they were above. It was quite obvious what was going on.
Q Okay, and the other example that you gave was in-lake treatment. Does in-lake treatment or any of
the in-lake treatment that you did require 02:19PM
identification of the sources contributing to the levels that you see in the lake?
A Yes. The source was pretty obvious. In the case of hydrogen sulfide, it was coming from the
hypolimnion, the lower part of the lake where there 02:20PM
was no dissolved oxygen. Sources of taste and odor contaminants were -- we've already talked about at length, and I had mentioned that before, but that was, of course, again, in-reservoir identification
and treatment of contaminants. 02:20PM

Q Did -- did he do the job that you did previously before you left?
A No. He was a specialist. He was a limnologist.
Q Okay. Did -- is it Dr. Horne? 02:28PM
A Yes.
Q Did he make any recommendations to -- to you or to Metropolitan regarding the method to deal with the algae blooms in any of the reservoirs?
A I don't recall any. I know that we worked 02:28PM together on those reservoirs.. My recollection of what he actually did and, you know, what resulted from that, I just can't recall at this point.. It was a long time ago.
Q Earlier when we talked about phosphorus 02:28PM limitation and/or nitrogen limitation, you talked about somebody advising you, getting a couple of different opinions regarding whether or not these reservoirs were phosphorus or nitrogen limited. Did you get any opinion from Dr. Horne? 02:29PM
A Yes.
Q And what was his opinion?
A I don't recall.
Q So originally we were talking about areas of your expertise, and what I'm trying to determine is, 02:29PM

have you done any work to go out into a watershed to identify contributors of pollutants to water bodies?

MR. JORGENSEN: Objection, asked and answered.

A No, with the exception of the asbestos that I already talked about and with the exception of the delta -- the -- the Sacramento-San Joaquin Delta, which was specifically, you know, providing organic precursors. So the answer really isn't no. The answer is, yes, that we -- we have -- I particularly -- I personally have gone into watersheds and found -- looked for and, in at least two cases I can recall off the top of my head, found sources of organic and inorganic contaminants that we needed to deal with one way or another. 02:30PM 02:30PM 02:31PM

Q Okay, and the one instance is the asbestos that we just talked about; is that correct?

A Yes.

Q And the other instance is the delta project that we discussed earlier today? 02:31PM

A Yes.

Q And, as I understood that delta project earlier, there was a Gary Aim (sic), is -- is that correct, that was responsible for that project?

A Gary Amy, A-M-Y -- 02:31PM

Q Amy.
A -- was a professor at University of Arizona -- he's currently in the Netherlands -- who we consulted with on that.
Q Did you actually do fieldwork in that project? 02:31PM
A Collected samples, yes.
Q Okay.
A I didn't personally, but I supervised that -- that work.
Q Okay. Did you analyze those results in terms 02:31PM of determining the source?
MR. JORGENSEN: Objection to form.
A I didn't personally do any of that analysis. That was, again, the reason why we hired Dr. Amy. There were a variety of different studies going on 02:32PM that I was involved in in many different capacities. It's kind of hard to remember exactly what I did and what consultants did at this point. I was involved in it at various levels, supervising, doing, working with contractors. 02:32PM
Q It's the doing part I'm trying to get my -- my understanding clear on. I -- I guess it was my previous understanding that -- that Metropolitan retained Dr. Amy to do the research to identify sources. 02:32PM

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Plaintiff,	)	
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VOLUME II OF THE VIDEOTAPED DEPOSITION OF MICHAEL McGUIRE, PhD, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 19th day of March, 2009, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Kristen Holmes, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

Q So if the MCLG is exceeded, is there risk to human health from the person who's exposed to the water that is -- exceeds the MCLG?

MR. JORGENSEN: Objection.

A You're asking me a health risk question. 09:20AM

Q Uh-huh.

A And I've stated pretty clearly that I'm not a toxicologist. So I think it's clear that I don't have an expert opinion on that..

Q Okay. If the EPA establishes an -- an MCLG 09:20AM for a contaminant, does that mean that the contaminant is -- is -- may have an adverse effect on the health of -- of persons?

MR. JORGENSEN: Objection.

A That's the definition, yes. 09:21AM

Q Do you know which DBPs there are MCLGs for --

A Not --

Q -- established?

A I don't have them memorized. They're listed in the rule. 09:21AM

Q Okay. Do you know whether there is, just from your memory, an MCLG for chloroform?

A The MCLGs have changed dramatically over the last 25 years, and so the numbers have changed, those that have MCLGs have changed, and I -- I would 09:21AM

location of the plume, where do you need to site, capture wells, that kind of thing.

Q When that's done, is it based on a concern about risks to human health?

MR. JORGENSEN: Objection. 02:33PM

A In -- in the particular case of San Gabriel Valley, yes, because that water is extracted and used for drinking purposes. So the levels that were used for treatment of that water were levels established by the state and, indeed, were the MCLs. 02:33PM

Q And we may have covered this before. Have you -- have you conducted any scientific or medical research on the health effects of disinfection byproducts?

A No. 02:34PM

MR. JORGENSEN: Objection.

A I'm sorry. Did you hear me? I said no. We -- we spoke over each other..

MR. JORGENSEN: I apologize.

Q Are you qualified to give opinions on risks to 02:34PM human health from ingesting DBPs?

A No.

Q Can disinfection byproducts cause taste and odor problems?

A Not the disinfection byproducts we're talking 02:34PM